

Chapter 1: Overview of the NWSSIP Update

A. Key Water Sector Issues and NWSSIP

Water sector issues

Historically, Yemenis have been adept at managing water sustainably, but now water use far outstrips renewable supply. Rapid development of water has brought considerable prosperity, particularly to the agriculture sector which has grown strongly and which uses some 90% of the total water resource available. However, demand is still rising and resources are virtually all developed. Non-renewable groundwater is being mined and the large part of the economy dependent on the groundwater resource is consequently under threat. Competition is growing between users at both the local level and between town and country. Water mining has to be reduced, but as groundwater also drives the comparative prosperity of the rural economy, policy has to look not only at sustainability, but also at incomes.

In addition, Yemeni settlements are quite poorly provided with safe water and sanitation services. In urban areas, only about 56% of the population has access to network water supply, and only 31% to sewerage. In rural areas, about 45% of the population has access to safe water, and only 21% to adequate sanitation. In addition, towns – particularly the largest cities such as Sana'a and Ta'iz - are very short of water, and are faced with very high cost new supply options. Low access of the poor to water and sanitation services has negative and impoverishing effects on public health, children's education and general well being.

Policy, institutional and program responses

Government has been aware of these reform challenges for a number of years, and has taken some significant institutional steps. Strategic planning began in the early 1990s. In 1996, the National Water Resources Authority (NWRA) was created to implement an integrated approach. A water law was enacted in 2002, and in 2003 the Ministry of Water and Environment (MWE) was established. MWE prepared a consolidated strategy, action plan and investment program for the water sector as a whole – the **National Water Sector Strategy and Investment Program 2005-9 (NWSSIP)**, adopted and published by government in 2004.

NWSSIP strategy aimed at recovering control over the groundwater resource and moving Yemen towards the Millennium Development Goal (MDG) targets for water supply and sanitation. Key elements were strengthening of the institutional basis for regulating water rights and use, a decentralized partnership approach to water management at the basin and local levels, support to water user associations as the basic building blocks of water management at the lowest level, investment in irrigation modernization, the use of economic instruments for demand management, a demand-responsive approach in rural water, and a business-like approach to urban service delivery through: separation of

regulatory functions from service delivery, decentralization to autonomous local utilities, and efficiency gains, including through partnership with the private sector.

Results to date and the NWSSIP Update

Since implementation of the NWSSIP measures began in 2005, the process has proved valuable, providing a common framework for planning, financing, implementation and monitoring, and a point of reference and a forum for stakeholders to maintain continuous dialogue through the Joint Annual Reviews (JARs). At the level of implementation and results, progress has been considerable, although uneven across the sub-sectors.

Water resources management. The institutional framework for integrated water resource management (IWRM) has been strengthened, although decentralization to the basin and local levels remains to be completed. Basin plans and committees and measures to support local-level water management are progressively being put in place and now need more authority and resources. Synergy, particularly with irrigation institutions, needs strengthening. Monitoring and regulation are being implemented, although constrained by institutional capacity. Incentives have been sharpened by a sizable increase in diesel prices in 2005. Measures to generate and disseminate knowledge and to create partnerships with water users have been taken on a pilot scale and are ready for scaling up. Overall, the responsible agency, NWRA, continues to face challenges in implementation capacity. Impacts on the ground are as yet limited. Although there is some evidence of localized reduction in groundwater use where farmers have organized together and have modernized their irrigation, there is as yet little evidence of a beneficial impact on the water balance.

Urban water supply and sanitation. The urban water reforms, started in 1997, continue basically on track. Water supply coverage has increased from 2.4 million urban residents (47% of the total urban population) in 2002 to 3.6 million, 56% of the (increased) urban population in 2007. Sanitation coverage has increased from 1.3 million urban residents (25% of the total) in 2002 to 2.0 million, 31% of the (increased) total in 2007. Institutional reform has proceeded and most utilities are now quasi-autonomous. Services and implementation efficiency have improved, although short of NWSSIP targets. Achievement of objectives has been constrained by a shortfall in investment finance and by institutional capacity, and institutional reforms are only gradually having their effect. Most utilities have not yet achieved full financial autonomy, and partnership with the private sector has proved harder to implement than expected. The poor who are connected to networks generally benefit from the lifeline tariff, but in some cases this needs to be adjusted to make sure that the cross-subsidy that is supposed to go to the poor does not also go to the better off. Preparations to set up the independent regulator are still underway.

Rural water supply and sanitation. Considerable gains in rural safe water coverage have been registered: up from 25% in 2003 to 44% by the end of 2007. Sanitation coverage has, however, lagged, with an increase from 20% to just 21% over the same period. Institutional reform is being implemented with improvements in agency performance,

particularly in GARWSP. Decentralization, the demand responsive approach and user responsibility have all been implemented with some success. The four main public agencies and projects (GARWSP, PWP, SFD, RWSSP) are cooperating, and have begun working towards jointly programming their interventions and aligning their institutional approaches and technology. Water resources are presenting a growing problem, as groundwater depletion increases costs and threatens the sustainability of schemes. Overall, although financial resources have been below expectations, absorptive capacity and implementation efficiency have improved. Subsector disbursements rose from \$31 million in 2005 to \$50 million in 2007, and sector agencies disbursed 90% of the approved budgets 2005-7.

Irrigation and watershed management. Progress has been made on investing in water saving for both groundwater and spate irrigation and on creating water user associations, although scaling up is going slowly. In 2007, government's program for irrigation modernization covered only 6,800 ha out of a total groundwater irrigated area of 450,000 ha. Budgets have been limited and implementation has been constrained, with disbursements in 2007 less than half the approved budget. The agricultural fund, AFPPF, has begun to invest in agricultural water but is still allocating most resources to dam projects. Research on agricultural water has been strengthened through AREA, and the Irrigation Advisory Service is providing extension. Cooperation of the Ministry of Agriculture and Irrigation (MAI) with MWE and NWRA has been improving, but the challenge remains at the basin and local level to link water saving in agriculture with efforts to create the institutional basis for local water management. Irrigation user associations need to be brought within the local water resources management framework.

B. Components of the NWSSIP Update

As discussed above (see Introduction), the Yemeni government took the decision in late 2007 to prepare an update of NWSSIP I in order to adjust policy and programme measures in the light of experience and to incorporate irrigation more fully into an integrated water resources management framework. The NWSSIP Update (2008-2015) will also serve as the basis for a sector-wide approach to financing under the donor-financed Water Sector Support Programme (WSSP).

The NWSSIP Update also sets an overall goal for the water sector:

To improve the Yemeni population's sustainable and economically efficient use of the nation's scarce water resources.

This overall goal will be achieved through five key objectives, with related outcomes and indicators, as summarized in the table below.

Table 1.1: The NWSSIP Update Overall Goal and Key Objectives

Overall goal	Impacts	Impact indicators
To improve the Yemeni population's sustainable and economically efficient use of the nation's scarce water resources	Increased access to safe and affordable water and sanitation Rural incomes are sustained Rate of groundwater depletion slows in key basins	<ul style="list-style-type: none"> ▪ Percentage of MDGs attained ▪ Real rural GDP pc maintained ▪ Depletion rates reduced in Sana'a, Upper Wadi Rasyan, and Amran
Key objectives	Key outcomes	Key outcome indicators
Key objective 1: Strengthen institutions for sustainable water resources management	NWRA, basin committees, local authorities and other partners have the institutional capacity to develop and coordinate integrated water resource management	<ul style="list-style-type: none"> ▪ 8 NWRA branches decentralized and fully functioning ▪ 8 basin committees and plans operational and fully financed
Key objective 2: Improve community-based water resource management	Communities are empowered and enabled to manage their water resources at the local level	<ul style="list-style-type: none"> ▪ Number of farmers organized in WUAs and cooperating in water resources management ▪ Number of agricultural wells monitored and controlled by WUAs
Key objective 3: Increase access to water supply and sanitation services	The Yemeni people, both urban and rural, have increased affordable access to safe and regulated water supply and sanitation	<ul style="list-style-type: none"> ▪ 65% of urban residents have access to safe water ▪ 50% of urban residents have access to safe sanitation ▪ 62.5% of rural residents have access to safe water ▪ All water supply projects have provision for safe sanitation
Key objective 4: Increase returns to agricultural water use	Farmers are able to sustain their incomes whilst using less water	<ul style="list-style-type: none"> ▪ Area using water saving techniques
Key objective 5: Recover control over groundwater abstraction in critical water basins	Groundwater abstractions from critical basins have been stabilized or reduced	<ul style="list-style-type: none"> ▪ Abstractions in Sana'a, Upper Wadi Rasyan, and Amran basins have stabilized or reduced

To achieve the goal and key objectives, the NWSSIP Update is composed of four sub-sector strategies, action plans and investment and financing programmes. Table 1.2 summarizes the goals, objectives and outcomes for each subsector programme. Each subsector programme contains interfaces with other programmes. An integrated approach across the water sector as a whole is to be achieved through sector governance institutions (see below, *Actions that will need to be jointly planned and implemented*) and through the central and decentralized planning functions contained in the integrated water resource management programme. A sector-wide approach to institutional development will also be adopted (see below, *Institutional development under NWSSIP*).

Table 1.2: The NWSSIP Update Sub-Sector Programmes at a Glance

Objectives	Outcomes
<i>IWRM Goal: to ensure sustainable water resources management and economically efficient and equitable water resources development and use</i>	
1. Strengthen capacity and implementation for integrated water resources management	1.1 IWRM capacity development
	1.2 Groundwater monitoring and control
	1.3 Water quality
2. Manage environmental impacts	2.1 Environmental protection
	2.2 Partnership with the private sector on effluent and wastewater
3. Efficient water development and use	3.1 Irrigation efficiency
	3.2 Protection of user rights
<i>UWSS Goal: to increase urban water and sanitation coverage while keeping services safe, affordable to the poor, sustainable and properly regulated.</i>	
1. Increase access for the entire urban population	1.1 Increased access to network water supply
	1.2 Increased access to safe sanitation
	1.3 UWSS strategy
2. Keep services sustainable and affordable	2.1 Improved financially sustainable services
	2.2 Securing sufficient water resources
	2.3 Utilities to be autonomous
	2.4 Human resource development
3. Ensure that the poor have affordable access	3.1 Pro-poor strategy
<i>RWSS Goal: to provide safe, sustainable, affordable and equitable water along with appropriate sanitation</i>	
1. Increase access for the entire rural population	1.1 Increased coverage
2. Keep services sustainable and affordable	2.1 Selection of appropriate technologies
	2.2 Sustainable quality water sources
	2.3 Targeted interventions and sustainable community institutions
3. Deliver efficient, least cost projects on a demand-driven basis	3.1 Increased project implementation efficiency
	3.2 Strengthened coordination
	3.3 GARWSP decentralization
<i>Irrigation Goal: to maintain a profitable, economically efficient, equitable and sustainable irrigated agriculture</i>	
1. Strengthen institutions to play their role in promoting efficient water use;	1.1 Sector restructuring
2. Promote sustainable agriculture through water resources protection and allocation	2.1 Water resources protection and allocation
3. Increase farmer incomes through increased water use efficiency	3.1 Water use efficiency
4. Enhance resource sustainability and quality through watershed management	4.1 Watershed management

Integrated water resource management (IWRM)

The water resources challenge is extreme. The Update therefore contains strengthened elements with particular emphasis on integrated actions and on decentralized and bottom up approaches designed to begin to impact on the critical groundwater balance.

The programme strengthens NWRA's capacity for integrated water resource management (IWRM), and promotes integrated planning and cooperation. Considerable investment is to be made in knowledge building and monitoring in order to provide better support to planning. Groundwater monitoring and regulation will be strengthened. Partnerships amongst stakeholders will be consolidated, with particular emphasis on partnerships for decentralized management with basin committees and water user associations at the basin and local levels. NWRA will strengthen decentralization of responsibility to its branches, and all stakeholders at the decentralized level will be better empowered to implement basin plans more effectively. There will also be improved partnership and joint work with MAI and its programmes and projects, particularly the proposed National Irrigation Programme (NIP), on water resources management at the local level, on WUA development and responsibilities, on cooperation in basin planning and the basin committees, and joint work on water use efficiency and groundwater management for irrigation. There will be reinforced efforts on water rights, on prioritization of water uses, and on the development of equitable transfer mechanisms. Programme costs to 2015 are estimated at \$41 million.

Urban water supply and sanitation (UWSS)

The target for 2015 is to bring public network safe water to a further 1.75 million urban inhabitants, with total coverage reaching 60% for safe water and 33% for centralized public sanitation systems. The public sector will work with the private sector to extend safe, affordable and regulated water coverage to the balance of the urban population, and to develop decentralized network sanitation where this is the most cost effective solution. A series of measures will complete the reform and decentralization process by 2015, build capacity, and improve water and sanitation service provision, including for the poor. Programme cost to 2015 is estimated at \$1.6 billion.

Rural water supply and sanitation (RWSS)

The NWSSIP Update builds on the relatively successful performance of recent years with a program designed to maintain the rapid expansion of coverage and to improve performance, with particular emphasis on joint approaches and more sustainable and pro-poor projects. The target for 2015 is to bring safe water to an additional 6.4 million rural people and to ensure that sanitation and hygiene are integrated into every scheme. GARWSP would deliver about 60% of the increased access, and the three other public agencies and projects in the sector would bring almost all the rest. The Social Fund for Development will continue to specialize in potable water schemes based on water harvesting. There will be strengthened alignment of all agencies on the same strategy, programming mechanism and implementation procedures, and a broader range of

technologies will be offered. Participatory approaches will be adopted across the board, and sanitation and hygiene education will be systematically addressed, including a standard 10% of drinking water investment allocated to these areas. Programme cost to 2015 is estimated at \$800 million.

Irrigation and watershed management

The NWSSIP Update responds to the enormous challenge of reducing water mining whilst sustaining rural incomes with a proposal for a massive investment program, thoroughgoing institutional reform, and an emphasis at the field level on integrated approaches and user self-management. This is an agenda in which some measure of success is essential to the survival of the rural economy.

The target for 2015 is to equip a further 250,000 ha with piped conveyance and 61,000 ha with drip or bubbler irrigation, and to rehabilitate a further 100,000 ha of spate irrigated land. Investment in agricultural water structures would be according to best practice environmental, social and economic norms. A sector restructuring programme would be implemented, both for the irrigation sector and across MAI as a whole, including AFPPF. Irrigation service delivery would be improved through the establishment of a National Irrigation Programme (NIP), integrating all existing public support to irrigation. The Irrigation Advisory Service (IAS) will be scaled up. Decentralization and cooperation with water user associations would be generalized, and MAI and NWRA would work together with water user associations in local water management plans, under the overall framework of the basin plans. Programme cost to 2015 is estimated at \$800 million.

Actions that will need to be jointly planned and implemented

A massive challenge in water resources management is to integrate planning and implementation amongst subsectors and agencies. For the NWSSIP Update, considerable effort has been made to identify areas of joint responsibility and implementation where joint planning will be needed. For each topic, specific agencies will take the initiative to lead and coordinate an integrated effort. Table 1.3 shows the activities that require interagency cooperation and highlights the lead agency. In summary, there are nine cross cutting topics where an integrated or coordinated approach is needed. They are:

A. Integrating water resource management

1. *IWRM at the basin level*: in line with NWSSIP's decentralized approach, NWRA and the basin committees will lead other agencies in preparing and implementing basin plans, establishing protection zones, registering water rights, allocating water resources to priority uses, and facilitating resource transfer.
2. *Developing water user organizations as the building blocks for water management*: water user organizations are being set up for water resource management, rural water supply and irrigation. NWRA, the rural water agencies

and MAI will take the lead in evaluating the experience to date,¹ developing a coherent approach to user organizations as the basic building block of decentralized water management, and scaling up and strengthening the user organization movement.

B. Coordinated sourcing and use of water

3. *Sourcing water for domestic use:* growing water shortages and problems of poor sustainability create the imperative for the urban and rural water supply agencies to work together with NWRA and users within basin plans to source sustainable and good quality water.

4. *Developing alternative water sources:* in the light of the rising cost and increasing scarcity of water resources, NWRA will take the lead to work with the urban and rural supply agencies, NGOs and the private sector to test and develop alternative water resources and technologies, including desalination, rainwater harvesting, low cost drinking water purification etc.

5. *Improving water use efficiency:* water scarcity is also stimulating the search for increased efficiency in water use both in water supply and, more particularly, in irrigation. NWRA, MAI and the water supply agencies will take the lead in this essential work.

6. *Water quality:* NWRA has recently revived the inter-agency Water Quality Committee, and will lead the effort under the NWSSIP Update to update standards, finalize policy and implement a pollution monitoring programme.

7. *Water reuse:* used water can be a valuable water source, and NWRA will lead MAI and the water supply agencies in research and development of cost effective and safe treatment and reuse mechanisms for irrigation drainage water and wastewater.

C. Improving water management policy

8. *Policy environment:* NWRA will coordinate the discussion on the recommendations of the groundwater incentives study and propose needed policy changes to the incentive structure.

9. *Environmental Impact Assessment (EIA):* EPA will update and improve the EIA mechanism and work with other sector agencies, particularly MAI and NWRA to ensure consistent application of EIAs to water programmes, including dams.

¹ A *National Conference on Community Water Management and Water Rights* will be held in the first half of 2009 in which Yemeni and international experience on decentralized water management, establishment of water rights as the basis for water management, water user associations etc would be shared and a clear agenda for pursuing this approach under NWSSIP would be agreed, ready for implementation.

Table 1.3: NWSSIP activities requiring inter-agency approaches (references are to the sub-sector action plans)

Cross cutting topic	Agencies	Joint actions	Reference
1. IWRM at the basin level	NWRA, basin committees, local authorities, MAI, users	<ul style="list-style-type: none"> ▪ studies of priorities at basin level ▪ preparation and implementation of basin plans ▪ support to basin committees ▪ establishment of protection zones ▪ water rights registration and water transfer 	IWRM 3.2.1 IWRM 1.1.4 IWRM 1.1.7 IWRM 1.3.3 IWRM 3.2.2
2. Developing WUAs as the building block for water management	NWRA, basin committees, local authorities, MAI, users	<ul style="list-style-type: none"> ▪ <i>National Conference on Community Water Management and Water Rights</i> ▪ development of water users associations as the lower level building blocks of water resources management 	IWRM 1.1.4 IWRM 1.1.7
	RWSS agencies, NWRA, MAI, NGOs, WUAs	<ul style="list-style-type: none"> ▪ capacity building of effective and sustainable user organizations for rural water 	RWSS 2.3.2
	MAI, NWRA, basin committees, local authorities, RWSS agencies, WUAs	<ul style="list-style-type: none"> ▪ development of water user organizations for irrigation, including a study and strategy for scaling up 	IRRIG 2.1.1
3. Sourcing water	MWE/utilities, NWRA, basin committees, WUAs, private sector	<ul style="list-style-type: none"> ▪ identify resources within basin plans ▪ develop equitable and sustainable models for resource transfer, recognizing water rights and “no uncompensated harm” 	UWSS 2.2.1 UWSS 2.2.1
	RWSS agencies, NWRA, basin committees, local authorities, WUAs	<ul style="list-style-type: none"> ▪ map, identify and monitor resources within basin plans ▪ sustainable management of RWSS sources 	RWSS 2.2.1 RWSS 2.2.2
4. Developing alternative water sources	NWRA, MAI, urban utilities, private sector, NGOs	<ul style="list-style-type: none"> ▪ developing desalination, rainwater harvesting and other options 	IWRM 1.2.5
	MWE/utilities, NWRA, private sector, NGOs	<ul style="list-style-type: none"> ▪ desalination study for coastal cities 	UWSS 2.2.1
	RWSS agencies, NWRA, SFD, private sector	<ul style="list-style-type: none"> ▪ development and distribution of low cost technologies for drinking water supply 	RWSS 2.1.1

Cross cutting topic	Agencies	Joint actions	Reference
5. Improving water use efficiency	NWRA, MAI, rural water agencies, urban utilities	<ul style="list-style-type: none"> ▪ technology and pilot programmes in water use efficiency ▪ irrigation water management ▪ irrigation technology 	IWRM 1.2.2 IWRM 3.1.1 IWRM 3.1.2
	MWE/utilities, NWRA, private sector	<ul style="list-style-type: none"> ▪ implementing a loss reduction programme ▪ improving network management and efficiency 	UWSS 2.1.1 UWSS 2.2.2
	MAI, NWRA	<ul style="list-style-type: none"> ▪ Research on water use efficiency, technology and pilot programmes in water use efficiency 	IRRIG 3.1.1
6. Water quality	NWRA, EPA, Water Quality Committee, urban utilities	<ul style="list-style-type: none"> ▪ updating water quality standards and finalizing water quality policy ▪ water pollution monitoring ▪ establishment and enforcement of protection zones 	IWRM 1.3.1 IWRM 1.3.2 IWRM 1.3.3
7. Water reuse	NWRA, MAI, urban utilities	<ul style="list-style-type: none"> ▪ cost effective and safe treatment/reuse of irrigation drainage water ▪ urban wastewater treatment and reuse 	IWRM 2.1.1 IWRM 2.1.1 UWSS 1.2.3
8. Policy environment	NWRA, MAI, MWE, other government agencies	<ul style="list-style-type: none"> ▪ the policy framework for groundwater management 	IWRM 1.2.3
9. Environmental Impact Assessment (EIA)	NWRA, EPA, MAI, all water agencies	<ul style="list-style-type: none"> ▪ updating and improving the EIA mechanism ▪ ensuring consistent application of EIAs to water programmes, including dams 	IWRM 2.1.3 IWRM 2.1.3

Institutional development under NWSSIP

Institutional strengthening has been identified as a critical need for the water sector (see box below on *Institutional Development*). Because the institutional development needs are pervasive across all subsectors, the NWSSIP Update addresses them in an integrated way. An overall goal for water sector institutional development has been set: *water sector institutions are developed and their organizational performance enhanced to implement NWSSIP in an effective and efficient manner*. Institutional development outcomes, outputs and activities have been identified at the sub-sector level and aggregated at the sector level as a “water sector institutional development programme”. All these actions and the related budgets have then been integrated back into the four sub-sector programmes for implementation purposes. For all agencies, implementation of the NWSSIP Update would start with institutional development studies to set institutional development goals and agree on organizational development programmes. The total cost of the institutional development programme across the sub-sectors is estimated at \$18 million 2008-2015 (Table 1.4, Outcomes 1-4), but activities and costs will be adjusted in the light of the institutional development studies. Implementation will be tracked both at the sub-sector level and at the level of the institutional development programme of the water sector as a whole.

Institutional development

Institutions are defined as formal regulations (e.g. water law and by-laws), informal rules (e.g. norms of behaviour), and self-imposed codes of conduct (e.g. cooperation). Institutions and organizations are not the same, they are not interchangeable. Institutions can be defined as “rules of the game”, organizations as the “structure of the game”. Institutions shape incentives that drive behaviour and performance. They are therefore a major factor for success or failure. Institutional development is all about setting the rules, incentives and enforcement mechanisms in the right manner to pave the way for e.g. implementation of a program. Implementation of a program will always have to include institutional development.

Source: Yemeni-German Technical Cooperation/Water Sector Program

The institutional development programme also covers institutional development actions at the higher level of overall sector governance.² Higher level actions supporting institutionalized coordination, joint planning and monitoring, fiduciary risk management, and communications include: the activities of the Inter-Ministerial Steering Committee (IMSC); the work of the PMC; the Donor Core Group; the subsector working groups; the Joint Annual reviews (JAR); the M&E function; sector-wide communication strategies; anti-corruption and conflict resolution mechanisms; and capacity building in mainstreaming gender into the programme. A lump sum of \$5 million has been allocated for this higher level program.

² See Section 1D below for details of organizational arrangements for NWSSIP.

Table 1.4: The Water Sector Institutional Development Programme 2008-2015

Key institutional development outputs	Leading institutional development indicators	Costs \$ 000s
<i>Outcome 1: An effective NWRA at national and branch levels in partnership with all stakeholders</i>		
Institutional development study	Institutional development goals set and organizational development program agreed	
By-laws support IWRM	By-laws effective	
NWRA capacity increased	Modernization audit and staff assessment done	
Communication plan	Plan implemented	
Effective basin committees	# and effectiveness in implementing basin plans	
Productive partnerships	Effective and financed partnership arrangements	
Functional WUAs	# of local level water management plans effective	
Cost		6,496
<i>Outcome 2: An effective MAI at national and local level supporting water use efficiency</i>		
Institutional development study	Institutional development goals set and organizational development program agreed	
MAI restructured as a service delivery institution	# of farms modernized	
NIP effective	# of hectares covered by improved irrigation	
AFPPF restructured	% of AFPPF finance for water use efficiency	
Cost		715
<i>Outcome 3: RWSS agencies plan jointly and implement with a common approach, and GARWSP is fully decentralized</i>		
Institutional development study	Institutional development goals set and organizational development program agreed	
Rural water strategy	Strategy adopted and implemented	
Common approach	Demand-responsive approach (DRA) universally adopted	
Joint planning	Inventory conducted Joint annual plan for 2009	
IWRM approach	RWSS integrated in all basin plans All WUAs have local water management plans	
Cost		753
<i>Outcome 4: UWSS utilities are autonomous and self-financing, and the private sector is working in partnership</i>		
Institutional development study	Institutional development goals set and organizational development program agreed	
Public/private roles defined	Strategy for partnership with the private sector by 2010	
Utilities are run as businesses	Decentralization to utilities is complete Rising cost recovery Public companies established	
Human resource development	Human resource development plan implemented	
Cost		10,000
<i>Outcome 5: Water sector governance through coordination, joint planning and monitoring</i>		
IMSC oversees	IMSC meets twice a year	
PPC/PMC coordinates	PMC meets monthly	
Donor Core Group	DCG meets regularly	
Sub-sector working groups	All mandated and meeting at least quarterly	
Joint Annual Review	JAR held six months after each year end	
Communications programme		
Anti-corruption action plan, conflict resolution		
NWSSIP M&E	Reports on NWSSIP implementation	
Cost		5,000
TOTAL COST		22,964

C. Costs and Financing

Costs

Costs for the NWSSIP Update 2008-2015 are estimated at \$3.2 billion (see Table 1.5). Of this some 48% would be for the urban water sector (\$1.5 billion). The rural water and irrigation sector shares would be about 25% each (around \$800 million each). The water resources sector would invest \$41 million, less than 2% of the total NWSSIP Update investment.

Table 1.5: Costs, contingencies not included (\$ millions)

		2008-2010	2011-2015	2008-2015
IWRM	All costs	18.5	22.2	40.7
Urban water and sanitation	Investment in water supply and sanitation	528.7	950.1	1,478.8
	Policy implementation and institutional development	20.2	35.5	55.7
	Subtotal UWSS	548.9	985.6	1,534.5
Rural water and sanitation	Investment in water supply and sanitation	288.0	521.2	809.2
	Policy implementation and institutional development	13.4	6.2	19.6
	Subtotal RWSS	301.4	527.4	828.8
Irrigation	Investment in irrigation works	158.9	595.8	754.7
	Policy implementation and institutional development	27.7	18.2	45.8
	Subtotal Irrigation	186.5	614.0	800.5
TOTAL		1,055.3	2,149.1	3,204.5

Source: EAYRB

Absorptive capacity

As shown in Table 1.6, the rate of investment proposed for the water sector as a whole would be about \$400 million a year throughout the period. This compares with an average annual level of disbursement of \$144 million in 2005-7. The proposed levels of investment are well above historical disbursement levels for three of the four sub-sectors:

- The annual investment level proposed for IWRM (\$5.1 million) is comparable to actual disbursements 2005-7 (annual average of \$4.4 million) and so should be within NWRA's capacity to absorb.
- Investment proposed in urban water would average \$192 million a year. This is higher than proposed under NWSSIP I (\$150 million) and double average disbursements in the 2005-7 period (\$68 million). Absorptive capacity has, however, been increasing, with \$83 million delivered in 2007 (see Table 3.2 below).
- Similarly, the level of investment proposed for rural water (about \$100 million annually) is double the actual disbursements of \$50 million in the peak year 2007.

- For irrigation, the investment proposed is end-loaded towards the period 2011-2015, reflecting the need to build delivery capability. However, even the lower annual average proposed for 2008-2010 (\$62 million) is double actual disbursements in 2007 (\$31 million).

Overall, considerable investment to build implementation capacity will be required if the NWSSIP Update proposals are to be realized.

Table 1.6: Average annual investment, contingencies not included (\$ millions)

	Actual disbursements	Proposed under the NWSSIP Update		
	2005-7	2008-2010	2011-2015	2008-2015
IWRM	4.4	6.2	4.4	5.1
Urban water and sanitation	68.0	183.0	197.1	191.8
Rural water and sanitation	40.0	100.5	105.5	103.6
Irrigation	31.5	62.2	122.8	100.0
Average annual investment	143.9	351.8	429.8	400.6

Source of average annual disbursements: JAR III and Tables 2.2, 3.2, 4.2 and 5.2

Financing

Financing for part of the proposed \$3.2 billion programme (\$4.4 billion including price and physical contingencies) has already been acquired (Table 1.7). Existing external programmes and commitments cover \$769 million (17%), and government commitments cover a further \$962 million (22%). In addition, self-financing and beneficiary contributions would cover a further \$511 million (12%). The financing gap is estimated at \$2.2 billion (49% of the total programme).

Table 1.7: NWSSIP Update financing plan (\$ millions)

	Foreign commitments	Government commitments	Other local*	Total financing	Total cost	Gap	% gap
IWRM	1.4	2.5	-	3.9	40.7	36.8	90%
Urban water and sanitation	301.7	332.8	105.0	739.5	2,135.7	1,396.2	65%
Rural water and sanitation	221.0	505.4	259.3	985.7	1,210.4	224.7	19%
Irrigation	244.5	121.8	146.9	513.2	1,044.0	530.8	51%
TOTAL FINANCING	768.6	962.5	511.2	2,242.3	4,430.8	2,188.5	49%

Source: EXPFIN. When available, detailed financing plans of programmes, projects etc. have been taken into account. .

* Self-financing and beneficiary contribution

D. Implementation

Organizational arrangements

The organizational arrangements under the NWSSIP Update assign lead responsibility for each sub-sector to one government institution, and provide for all four sub-sectors to be brought within an integrated policy, strategy and financing framework. Thus, urban water implementation is through the Local Corporations and autonomous utilities, under the coordination of MWE and its Technical Secretariat and (from 2010) the independent regulator. Rural water interventions are implemented through four government agencies and projects, together with some NGOs, under the coordination of GARWSP. Irrigation interventions are coordinated by MAI, with MAI departments responsible for irrigation policy and strategy, M&E and reporting, and the proposed National Irrigation Programme (NIP) delivering program investments. Interventions in integrated water resource management are implemented and coordinated by NWRA.

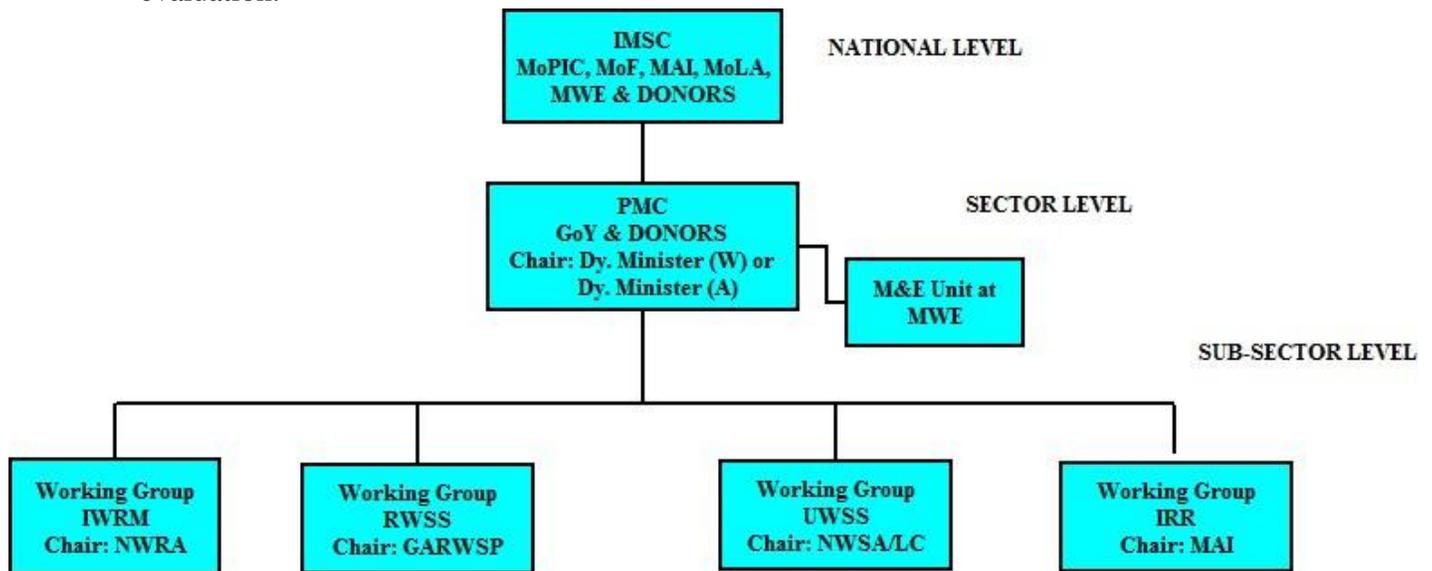
To ensure coordination and integration, the government has formed and institutionalized a high level Inter-Ministerial Steering Committee (IMSC) headed by the Deputy Prime Minister/Minister of Planning and International Cooperation, with membership of the ministers of MWE, MAI, MoF, and Local Administration (MoLA) and the five deputies of these ministries. This committee is in charge of overall coordination and implementation of program activities and is a platform to resolve any issues arising during implementation. The IMSC has overseen the preparation of the NWSSIP Update and WSSP, and it is expected that it will continue this role during implementation.

IMSC has been supported by the Program Preparation Committee (PPC) with Deputy Ministers from MOPIC, MAI, MWE, MOF and MoLA as members. The PPC has been effective during preparation of the NWSSIP Update and of the WSSP. Its mandate expired in August 2008 but it is expected that it will be transformed into a Programme Management Committee (PMC), with the mandate to monitor implementation of the NWSSIP Update and the WSSP and to resolve specific and generic implementation issues. Any issue which cannot be resolved by the PMC would be taken up to the IMSC for advice on the solution.

Donors have been represented by the Donor Core Group (DCG), which comprises four external partners engaged in the sector: Germany, the Netherlands, the United Kingdom, and the World Bank. The DCG has interacted with the IMSC and PPC on a regular basis, participating in their meetings.

At the sub-sector level, government has established and institutionalized four working groups representing the four sub-sectors. These groups, chaired by the respective mandated agency, are intended to be largely consultative and learning fora, but are also

charged with coordination of programs, alignment on best practice, and monitoring & evaluation.³



M&E

The purpose of the NWSSIP M&E system is to track progress towards objectives. The NWSSIP Update is logically structured, with the results chain from activity to objective clearly identified, and the related costs and financing attached. The NWSSIP “results-based” M&E system will use a Performance Measurement Framework (PMF) to capture actual results and report on them to stakeholders,

For NWSSIP M&E, the Ministry of Water and Environment (MWE) has established an M&E Unit reporting directly to the Deputy Minister (Water). The Unit is currently staffed with a senior M&E Coordinator (funded by the World Bank) and a junior specialist.

The results-based M&E will follow a participatory approach, with sub-sector groups/representatives responsible for M&E functions for their respective sub-sector. M&E data will be gathered at the lowest levels and selectively aggregated upwards to the M&E Unit at MWE. Staff at each level will be responsible for M&E, and the program’s sector institutional strengthening and capacity building component will provide needed training and technical support.

The findings of the M&E system will be distributed and used through: (i) regular (quarterly) reports; (ii) participatory M&E workshops (at least annually, in connection with JAR preparation) to evaluate results with all stakeholder groups; (iii) an annual status report covering all aspects of the sector (the “JAR Report”); and (iv) the Joint

³ To date, only the RWSS and IWRM groups have met with any frequency, but it is anticipated that all four groups will be institutionalized and will meet regularly once the NWSSIP Update and the WSSP are underway.

Annual Review (JAR) itself, conducted at national level among government, civil society, external partners, and other stakeholders.

MTEF and Mid-Term Review

The NWSSIP Update provides a policy framework and an indicative investment program to guide the water sector towards its targets. The Update will be translated into a rolling three year Medium Term Expenditure Framework (MTEF) to provide a comprehensive statement of all funding and expenditures programmed for the water sector for the following three years. A first MTEF will be prepared for the period 2009-2011, and the MTEF will be updated annually.

After a three year period of implementation, a “mid-term review” of performance and results under NWSSIP will be held, with the results to be presented to and discussed in JAR 2011.